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(54) **PARISON SUPPLY DEVICE AND SUPPLY METHOD**

(71) Applicant: **TOYO SEIKAN GROUP HOLDINGS, LTD.**, Tokyo (JP)

(72) Inventors: **Norihisa Hirota**, Kanagawa (JP); **Ikuo Komatsu**, Kanagawa (JP); **Hiromitsu Fukuoka**, Kanagawa (JP); **Atsushi Yoneda**, Kanagawa (JP); **Kouichi Narutaki**, Kanagawa (JP)

(73) Assignee: **Toyo Seikan Group Holdings, Ltd.**, Tokyo (JP)

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,153,408 A 5/1979 Albert et al.  
4,233,019 A \* 11/1980 Sawa ..... B29C 49/4205  
264/532  
4,560,340 A \* 12/1985 Younkin ..... B29C 49/04  
264/532

FOREIGN PATENT DOCUMENTS

DE 1 479 161 2/1969  
GB 1501775 A \* 2/1978 ..... B29C 49/04  
(Continued)

OTHER PUBLICATIONS

International Search Report issued Jul. 15, 2014 in International (PCT) Application No. PCT/JP2014/061374, with English translation.

(Continued)

Primary Examiner — Robert B Davis

(74) Attorney, Agent, or Firm — Wenderoth, Lind & Ponack, L.L.P.

(57) **ABSTRACT**

A parison supply device that continuously supplies, to a blow molding die, parison sections of a parison discharged from an extrusion die, the parison section having a specified length. The parison supply device includes a plurality of tension chucks and a tension chuck operation unit that operates the plurality of tension chucks. The tension chuck operation unit causes the individual tension chucks to perform a repeated operation of grasping the parison at a first

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